

**REMARKS**

Claims 1-24 are all the claims pending in the application. By this Amendment, Applicants amend claims 1, 6, 10, 14 and 21-24. No new matter is added. Support for the amendments is found, e.g., at pages 6 and 11 of the Specification as filed. Reconsideration and allowance of claims 1-24 are respectfully requested in view of the following remarks.

**I. Summary of the Office Action**

Claims 1-17 and 20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,483,846 to Huang et al. (hereinafter “Huang”) in view of U.S. Patent No. 6,754,226 to Nakano (hereinafter “Nakano”). Claims 18 and 19 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Huang and Nakano in view of U.S. Patent No. 6,505,247 to Steger et al. (hereinafter “Steger”). Claims 21-24 are rejected 35 U.S.C. § 103(a) as being unpatentable over Huang and Nakano in view of U.S. Patent No. 5,390,132 to Shioe et al. (hereinafter “Shioe”).

**II. Prior Art Rejections**

***Claims 1-20***

Independent claims 1, 6, 10 and 14 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Huang in view of Nakano. Applicants respectfully traverse these grounds of rejection because the references fail to teach or suggest all of the elements as set forth and arranged in the claims.

Specifically, Hunag in view of Nakano does not disclose or suggest “pre-planning the real-time communication before the communication starts . . . wherein the pre-planning

comprises defining a duration of each of the plurality of transmission cycles,” as recited in claim 1.

The Examiner acknowledges that Huang does not disclose or suggest the pre-planning of the real-time communication, as formerly recited in claim 1. However, the Examiner contends that Nakano cures this deficiency of Huang, citing Nakano at col. 4, lines 5-26. *See* pages 2-3 of the Office Action. In particular, the Examiner alleges that Nakano teaches pre-planning a real-time communication, as recited in claim 1, because in Nakano it is pre-planned “how the data should be packetized before the data is put on the communication bus.” *See* page 3 of the Office Action. Applicants respectfully disagree with the Examiner’s position.

Nakano is silent about pre-planning a real-time communication before the communication starts.

Instead, Nakano teaches

[t]he data processing section **divides the input into data blocks** each having a predetermined length . . . The formed data set is supplied to encoder 108 that encodes the data (including encryption), and supplies the encoded data to packet processing section 110 via a first-in first-out (FIFO) memory 109 to generate packets for isochronous transfer. The generated packets are sent out from link section 111 onto the bus (emphasis added).

*See* col. 4, lines 13-26. However, dividing input data into data blocks would not have been interpreted by a person of ordinary skill in the art as a step of pre-planning the communication. Instead, dividing data into data blocks, supplying it to an encoder, generating packets and

sending these packets onto a bus would have been interpreted by such a person as part of the real-time communication itself.

However, even if one would assume for the sake of argument, that the packetizing of data in Nakano might be interpreted as pre-planning a transmission of the data packets, Nakano does not disclose or suggest that such a packetizing “comprises defining a duration of each of [a] plurality of transmission cycles,” as required in claim 1. That is, because dividing data into data blocks, supplying data blocks to an encoder and generating data packets from data blocks is clearly different from defining a duration of a transmission cycle.

Huang does not remedy the deficiency of Nakano. As a result, Huang in view of Nakano does not disclose or suggest all of the elements as set forth and arranged in claim 1. Therefore, Applicants respectfully request that the rejection of claim 1 under 35 U.S.C. § 103(a) be reconsidered and withdrawn. Independent claims 6, 10 and 14 recite analogous features as claim 1 and are patentable for analogous reasons as claim 1.

Claims 2-5, 7-9, 11-13, 15-20 depend from claims 1, 6, 10 and 14, respectively. Steger does not cure the deficiencies of Huang in view of Nakano. Thus, claims 2-5, 7-9, 11-13, 15-20 are patentable at least by virtue of their dependencies.

***Claims 21-24***

Claims 21-24 are rejected 35 U.S.C. § 103(a) as being unpatentable over Huang and Nakano in view of Shioe. Applicants respectfully traverse these grounds of rejection because the references fail to teach or suggest all of the elements as set forth and arranged in the claims.

Specifically, independent claim 21 recites “each of a plurality of transmission cycles has a first partial cycle for transmitting real-time communication and a second partial cycle for transmitting non-real-time communication . . . wherein each partial cycle for transmitting real-time communication comprises microcycles, and wherein only isochronous real-time communication is transmitted in the microcycles.”

The Examiner acknowledges that Huang in view of Nakano does not disclose or suggest that each partial cycle for transmitting real-time communication comprises microcycles, as recited in claim 21. However, the Examiner contends that Shioe cures the deficient disclosure of Huang in view of Nakano. Applicants respectfully disagree with the Examiner’s interpretation of the Shioe reference.

Shioe relates to a “[a] distributed control system comprising a control station and a remote input/output device interconnected by a bus.” *See* Abstract.

Shioe teaches

[a] cyclic scan transmission . . . which is carried out in a minimum unit (called “microcycle”) of one cycle for fixed cycle communication between . . . I/O units . . . and [an] interface . . . Communication of one microcycle comprises three transactions . . . Fixed cycle I/O data is set to the first and second transactions for effecting cyclic scan transmission. The third transaction is used for **asynchronous** processing and usually is not used (emphasis added).

*See* col. 16, line 63 to col. 17, line 5 and FIG. 25. In other words, Shioe teaches a microcycle which is used for cyclic scan transmission and for asynchronous transmission. However, a person of ordinary skill in the art would have known that asynchronous communication is “[t]he

opposite [of] isochronous . . . communication.” *See, e.g.*, extract from Wikipedia “Asynchronous communication,” page 1 of 2 (copy enclosed). In addition, a person of ordinary skill in the art would have known that isochronous communication, and not asynchronous communication, is used for real-time data transmission. *See, e.g.*, paragraph [43] at page 11 of the Specification as filed.

Thus, even assuming, *arguendo*, that two of the three transactions in a microcycle in Shioe might correspond to an isochronous real-time communication, at least the third transaction of the microcycle in Shioe is an asynchronous processing, *e.g.*, a processing which is opposite to transmitting isochronous real-time data.. By contrast, claim 21 requires that “only isochronous real-time communication is transmitted in the microcycles.”

As a result, Huang in view of Nakano and Shioe does not disclose or suggest all of the elements as set forth and arranged in claim 21. Therefore, Applicants respectfully request that the rejection of independent claim 21 under 35 U.S.C. § 103(a) be reconsidered and withdrawn. Claim 24 recites analogous features as claim 21 and is patentable for analogous reasons as claim 21.

Claims 22 and 23 depend from claim 1. As discussed above, Huang in view Nakano does not disclose or suggest all of the elements as set forth and arranged in claim 1. Shioe does not remedy the deficiencies of Huang in view Nakano. Thus claims 22 and 23 are patentable at least by virtue of their dependencies from claim 1.

In addition, claims 22 and 23 recite analogous features as discussed with respect to claims 21 and 24. Therefore, claims 22 and 23 are also patentable for these additional analogous reasons as claims 21 and 24.

### **III. Conclusion**

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned attorney at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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